Marked Up Copy of Claims
With Amendments Made Herein

24. (Amended) A method for performing ophthalmic surgery comprising:

providing a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, a repetition rate of 1 Hz to 1000 Hz, and an energy level exiting from said output window of said basic laser of no greater than 10 mJ per pulse;

focusing [applying] said pulsed laser beam onto corneal tissue to a predetermined generally fixed spot size; [and]

scanning said pulsed laser beam, through known positions of an optical device moved by galvanometric forces, in a substantially overlapping pattern on said corneal tissue such that adjacent ablation spots on a single ablation layer of said corneal tissue significantly overlap one another; and

removing from 0.05 to 0.5 microns of corneal tissue per pulse.

36. (Amended) The method for performing ophthalmic surgery according to claim 24, wherein:

an area of corneal tissue [0.05] 0.2 to 0.5 microns deep is removed [with each] per pulse of said pulsed laser beam.

Kindly add the following new dependent claims:

--107. (New) The method for performing ophthalmic surgery according to claim 24, wherein:

said scanning moves said optical device using a motor.

108. (New) The method for performing ophthalmic surgery according to claim 24, wherein said scanning comprises:

rotational movement of said optical device.

109. (New) The method for performing ophthalmic surgery according to claim 24, wherein said optical device comprises:

a mirrored device.

110. (New) The method for performing ophthalmic surgery according to claim 24, wherein said optical device comprises:

a refractive device.

111. (New) The method for performing ophthalmic surgery according to claim 24, wherein said scanning comprises:

translational movement of said optical device.--

39. (Amended) A method for performing ophthalmic surgery comprising:

providing a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, a repetition rate of at least 1 Hz to 1000 Hz, and an energy level exiting from said output window of said basic laser of 0.5 to 10 mJ per pulse; [and]

focusing said pulsed output laser beam onto corneal tissue to a predetermined generally fixed spot size;

scanning said pulsed laser beam, through known positions of an optical device moved by galvanometric forces, in a substantially overlapping pattern on said corneal tissue such that adjacent ablation spots on a single ablation layer of said corneal tissue significantly overlap one another; and

removing from 0.05 to 0.5 microns of corneal tissue per pulse.

48. (Amended) A method of performing laser ablation on tissue, said method comprising:

providing a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, a repetition rate of 1 Hz to 1000Hz, and an energy level exiting from said output window of said basic laser of no greater than 10 mJ per pulse;

providing a galvanometer scanner; and

significantly overlapping adjacent ablation spots focused to a predetermined generally fixed spot size on a single ablation layer of said tissue by controlling said pulsed output beam with said galvanometer scanner to provide a substantially overlapping pattern of beam pulses on said tissue which remove from 0.05 to 0.5 microns of tissue per pulse.

64. (Amended) The method of performing laser ablation on tissue according to claim 48, wherein:

an area of corneal tissue in a range of [0.05] 0.2 to 0.5 microns deep is removed [with each] per pulse of said pulsed output beam.

69. (Amended) A method for ablating tissue, comprising:

providing a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength of 193 nm exiting from an output window of said basic laser, and a repetition rate of 1 Hz to 1000 Hz;

focusing said pulsed output laser beam onto said tissue to a predetermined generally fixed spot size; and

scanning said pulsed output laser beam, through known positions of an optical device moved by galvanometric forces, into a substantially overlapping pattern of beam pulses on said tissue such that adjacent ablation spots on a single ablation layer of said [corneal] tissue significantly overlap one another and remove from 0.05 to 0.5 microns of tissue per pulse.

45. (Amended) The method for [performing ophthalmic surgery] ablating tissue according to claim [39] 69, wherein:

an area of [corneal] tissue [0.05] 0.2 to 0.5 microns deep is removed [with each] per pulse of said pulsed laser beam.

Kindly add the following new dependent claims.

--112. (New) The method for ablating tissue according to claim 69, wherein:

said scanning moves said optical device using a motor.

113. (New) The method for ablating tissue according to claim 69, wherein said scanning comprises:

rotational movement of said optical device.

114. (New) The method for ablating tissue according to claim 69, wherein said optical device comprises:

a mirrored device.

115. (New) The method for ablating tissue according to claim 69, wherein said optical device comprises:

a refractive device.

116. (New) The method for ablating tissue according to claim 69, wherein said scanning comprises:

translational movement of said optical device.--

76. (Amended) An ophthalmic surgery apparatus for performing corneal refractive surgery by reshaping a portion of a corneal surface, said apparatus comprising:

a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, and an energy level exiting from said output window of said basic laser of less than 10 mJ per pulse sufficient to remove from 0.05 to 0.5 microns of tissue per pulse; and

a computer-controlled scanning device coupled to said basic laser to scan said pulsed output laser beam, through known positions of an optical device moved by galvanometric forces, to cause a significant overlap of adjacent ablation spots of predetermined generally fixed size on a single ablation layer to achieve a smooth ablation of corneal tissue [in an overlapped area between adjacent ablation spots].

78. (Amended) A method of performing corneal refractive surgery by reshaping a portion of corneal surface, said method comprising:

providing and pulsing a basic laser having an output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, a repetition rate of 1 to 1000 pulses per second, and an energy level exiting from said output window of said basic laser of no greater than 10 mJ per pulse;

focusing said output laser beam onto a corneal surface in a predetermined fixed spot size;

scanning said output laser beam through known positions of an optical device moved by galvanometric forces; and

substantially overlapping adjacent ones of a plurality of ultraviolet laser beam pulses over a single ablation layer on [a] said corneal surface sufficient to ablate a depth of between 0.05 and 0.5 microns of corneal tissue per ultraviolet laser beam pulse.

81. (Amended) The method of performing corneal refractive surgery by reshaping a portion of a corneal surface according to claim 80, wherein:

said optical device includes a mirrored surface [selected scanner is a galvanometer scanner].

82. (Amended) An ophthalmic surgery apparatus, comprising:

a basic laser having an output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, and an energy level exiting from said output window of said basic laser of less than about 10 mJ per pulse sufficient to remove from 0.05 to 0.5 microns of tissue per pulse; and

a computer-controlled scanning device coupled to said basic laser to scan said pulsed output laser beam, through known positions of an optical device moved by galvanometric forces, to cause a significant overlap of adjacent ablation spots of predetermined generally fixed size on a single ablation layer of said corneal surface to achieve a smooth ablation of corneal tissue [in an overlapped area between adjacent ablation spots].

87. (Amended) The ophthalmic surgery apparatus according to claim 82, wherein said scanning device comprises:

a [galvanometer] mirrored surface.

88. (Amended) The ophthalmic surgery apparatus according to claim [87] 82, wherein:

a [said] repetition rate of said laser is synchronized with said [galvanometer] scanning device.

Kindly add the following new dependent claims.

--117. (New) The ophthalmic surgery apparatus according to claim 82, wherein said optical device comprises:

a motor.

118. (New) The ophthalmic surgery apparatus according to claim 82, wherein said optical device comprises:

a mirrored device.

119. (New) The ophthalmic surgery apparatus according to claim 82, wherein said optical device comprises:

a refractive device.—

90. (Amended) A method for performing corneal refractive surgery by reshaping a portion of corneal surface, comprising:

selecting a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, and an energy level exiting from said output window of said basic laser of less than 10 mJ/pulse;

selecting a scanning mechanism for scanning said pulsed output laser beam through known positions of an optical device moved by galvanometric forces;

coupling said pulsed output laser beam to said scanning mechanism for [scanning] focusing said pulsed output laser beam in a predetermined generally fixed spot size on [over] said corneal surface;

controlling said scanning mechanism to deliver said scanning pulsed output laser beam in a substantially overlapping pattern on said corneal surface such that adjacent ablation spots on a single ablation layer of said corneal tissue significantly overlap one another to at least one of photoablate and photocoagulate corneal tissue; and

removing from 0.05 to 0.5 microns of corneal tissue per pulse, whereby a patient's vision is corrected by said reshaping of said portion of said corneal surface of said patient's eye.

91. (Amended) A method for performing ophthalmic surgery, comprising:

providing a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, and an output energy level exiting from said output window of said basic laser of no greater than 10 mJ/pulse sufficient to remove from 0.05 to 0.5 microns of corneal tissue per pulse;

focusing [applying] said pulsing ultraviolet laser beam into a predetermined generally fixed spot size on [onto] corneal tissue; and

scanning said pulsing laser beam, through known positions of an optical device moved by galvanometric forces, in a purposefully substantially overlapping pattern on said corneal tissue such that adjacent ablation spots in said overlapping pattern on a single ablation layer of said corneal tissue significantly overlap one another.

94. (Amended) The method of performing ophthalmic surgery according to claim 91, wherein:

said pulsing ultraviolet laser beam is sufficient to ablate a depth in a range of [0.05] 0.2 and 0.5 microns of corneal tissue per pulse.

105. (Amended) The method for performing corneal refractive surgery according to claim 90, wherein said optical device [scanning mechanism] comprises:

a [galvanometer] mirrored surface.

Reissue Claims in Fully Underlined Form
In Accordance With 37 CFR 1.121(b)(2)(i)(C)

33

24. (Amended) A method for performing ophthalmic surgery comprising:

providing a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, a repetition rate of 1 Hz to 1000 Hz, and an energy level exiting from said output window of said basic laser of no greater than 10 mJ per pulse;

focusing said pulsed laser beam onto corneal tissue to a predetermined generally fixed spot size;

scanning said pulsed laser beam, through known positions of an optical device moved by galvanometric forces, in a substantially overlapping pattern on said corneal tissue such that adjacent ablation spots on a single ablation layer of said corneal tissue significantly overlap one another; and

removing from 0.05 to 0.5 microns of corneal tissue per pulse.

26. (Not Amended) The method for performing ophthalmic surgery according to claim 24, wherein:

said substantially overlapping pattern is achieved using randomized scanning of said pulsed laser beam on said corneal tissue.

28. (Not Amended) The method for performing ophthalmic surgery according to claim 24, wherein:

said pulsed laser beam has a spot size on said corneal tissue of no greater than 1 mm.

30. (Not Amended) The method for performing ophthalmic surgery according to claim 26, wherein:

said pulsed laser beam has a spot size on said corneal tissue of no greater than 1 mm.

#34

32. (Not Amended) The method for performing ophthalmic surgery according to claim 24, wherein:

pulses of said pulsed laser beam corresponding to adjacent ablation spots on said single ablation layer overlap one another by least 50 percent.

35. (Not Amended) The method for performing ophthalmic surgery according to claim 24, wherein:

said pulsed laser beam is scanned synchronously with said pulses of said pulsed laser beam.

36. (Amended) The method for performing ophthalmic surgery according to claim 24, wherein:

an area of corneal tissue 0.2 to 0.5 microns deep is removed per pulse of said pulsed laser beam.

37. (Not Amended) The method for performing ophthalmic surgery according to claim 24, wherein:

said pulsed laser beam is scanned in circular patterns.

38. (Not Amended) The method for performing ophthalmic surgery according to claim 24, wherein:

said pulsed laser beam is scanned in linear patterns.

107. (New) The method for performing ophthalmic surgery according to claim 24, wherein:

said scanning moves said optical device using a motor.

43 108. (New) The method for performing ophthalmic surgery according to claim 24, 33 wherein said scanning comprises:

rotational movement of said optical device.

44 109. (New) The method for performing ophthalmic surgery according to claim 24, 33 wherein said optical device comprises:

a mirrored device.

45 110. (New) The method for performing ophthalmic surgery according to claim 24, 33 wherein said optical device comprises:

a refractive device.

46 111. (New) The method for performing ophthalmic surgery according to claim 24, 33 wherein said scanning comprises:

translational movement of said optical device.

47 39. (Amended) A method for performing ophthalmic surgery comprising:

providing a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, a repetition rate of at least 1 Hz to 1000 Hz, and an energy level exiting from said output window of said basic laser of 0.5 to 10 mJ per pulse;

focusing said pulsed output laser beam onto corneal tissue to a predetermined generally fixed spot size;

scanning said pulsed laser beam, through known positions of an optical device moved by galvanometric forces, in a substantially overlapping pattern on said corneal tissue such that adjacent ablation spots on a single ablation layer of said corneal tissue significantly overlap one another; and

removing from 0.05 to 0.5 microns of corneal tissue per pulse.

36 43

40. (Not Amended) The method for performing ophthalmic surgery according to claim 39, wherein:

said pulsed laser beam has a spot size on said corneal tissue of no greater than 1 mm.

~~47~~ 49

~~47~~. (Not Amended) The method for performing ophthalmic surgery according to claim ~~38~~ 37, wherein:

pulses of said pulsed laser beam corresponding to adjacent ablation spots on said single ablation layer overlap one another by at least 50 percent.

43. (Not Amended) The method for performing ophthalmic surgery according to claim 39, wherein:

said pulsed laser beam is pulsed at a repetition rate of at least 50 Hz.

44. (Not Amended) The method for performing ophthalmic surgery according to claim 39, wherein:

said pulsed laser beam is scanned synchronously with said pulses of said pulsed laser beam.

46. (Not Amended) The method for performing ophthalmic surgery according to claim 39, wherein:

said pulsed laser beam is scanned in circular patterns.

47. (Not Amended) The method for performing ophthalmic surgery according to claim 39, wherein:

said pulsed laser beam is scanned in linear patterns.

54 ~~48~~. (Amended) A method of performing laser ablation on tissue, ~~said method~~ comprising:

providing a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, a repetition rate of 1 Hz to 1000Hz, and an energy level exiting from said output window of said basic laser of no greater than 10 mJ per pulse;

providing a galvanometer scanner; and

significantly overlapping adjacent ablation spots focused to a predetermined generally fixed spot size on a single ablation layer of said tissue by controlling said pulsed output beam with said galvanometer scanner to provide a substantially overlapping pattern of beam pulses on said tissue which remove from 0.05 to 0.5 microns of tissue per pulse.

55 ~~49~~. (Not Amended) The method of performing laser ablation on tissue according to claim ~~48~~ 54, wherein:

said substantially overlapping pattern is achieved by placing said ablation spots on said single ablation layer of said tissue in random order.

53. (Not Amended) The method of performing laser ablation on tissue according to claim 48, wherein:

said ultraviolet wavelength is in a range of 193 to 215 nm.

54. (Not Amended) The method of performing laser ablation on tissue according to claim 48, wherein:

said ultraviolet wavelength is 193 nm.

58 ~~55~~. (Amended) The method of performing laser ablation on tissue according to claim ~~48~~ 54, wherein:

said pulsed output laser beam has an energy level exiting from said output window of said basic laser in a range of 0.05 to 10 mJ per pulse.

~~##~~ 38

57. (Not Amended) The method of performing laser ablation on tissue according to claim 48, wherein:

said pulsed output beam has a spot size on said tissue of no greater than 1 mm.

58. (Not Amended) The method of performing laser ablation on tissue according to claim 55, wherein:

said pulsed output beam has a spot size on said tissue of no greater than 1 mm.

60. (Not Amended) The method of performing laser ablation on tissue according to claim 48, wherein:

pulses of said pulsed output beam corresponding to adjacent ablation spots on said single ablation layer overlap one another by at least 50 percent.

63. (Not Amended) The method of performing laser ablation on tissue according to claim 48, wherein:

said pulsed output beam is scanned synchronously with said pulses of said pulsed output beam.

64. (Amended) The method of performing laser ablation on tissue according to claim 48, wherein:

an area of corneal tissue in a range of 0.2 to 0.5 microns deep is removed per pulse of said pulsed output beam.

65. (Not Amended) The method of performing laser ablation on tissue according to claim 48, wherein:

said pulsed output beam is scanned in circular patterns.

66. (Not Amended) The method of performing laser ablation on tissue according to claim 48, wherein:

said pulsed output beam is scanned in linear patterns.

67. (Not Amended) The method of performing laser ablation on tissue according to claim 48, wherein:

said pulsed output beam is scanned in concentric circles.

68. (Not Amended) The method of performing laser ablation on tissue according to claim 67, wherein:

said concentric circles have increasing diameters.

68

69. (Amended) A method for ablating tissue, comprising:

providing a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength of 193 nm exiting from an output window of said basic laser, and a repetition rate of 1 Hz to 1000 Hz;

focusing said pulsed output laser beam onto said tissue to a predetermined generally fixed spot size; and

scanning said pulsed output laser beam, through known positions of an optical device moved by galvanometric forces, into a substantially overlapping pattern of beam pulses on said tissue such that adjacent ablation spots on a single ablation layer of said tissue significantly overlap one another and remove from 0.05 to 0.5 microns of tissue per pulse.

61

68 ~~69~~ 45. (Amended) The method for ablating tissue according to claim ~~69~~, wherein:

an area of tissue 0.2 to 0.5 microns deep is removed per pulse of said pulsed laser beam.

46 40 45

70. (Not Amended) The method for ablating tissue according to claim 69, wherein:

said substantially overlapping pattern of beam pulses has an orientation which is achieved using a randomized scanning of said pulsed output beam on said tissue.

71. (Not Amended) The method for ablating tissue according to claim 69, wherein:

said pulsed output laser beam has an energy level exiting from said output window of said basic laser of no greater than 10 mJ per pulse.

72. (Not Amended) The method for ablating tissue according to claim 69, wherein:

said scanning overlaps adjacent beam pulses corresponding to adjacent ablation spots on said single ablation layer by at least 50 percent.

73. (Not Amended) The method for ablating tissue according to claim 69, wherein:

said basic laser is an excimer laser.

74. (New) The method for ablating tissue according to claim 69, wherein:

said scanning moves said optical device using a motor.

75. (New) The method for ablating tissue according to claim 69, wherein said scanning comprises:

rotational movement of said optical device.

76. (New) The method for ablating tissue according to claim 69, wherein said optical device comprises:

a mirrored device.

47 41 46

115. (New) The method for ablating tissue according to claim 69, wherein said optical device comprises:

a refractive device.

116. (New) The method for ablating tissue according to claim 69, wherein said scanning comprises:

translational movement of said optical device.

26. (Amended) An ophthalmic surgery apparatus for performing corneal refractive surgery by reshaping a portion of a corneal surface, said apparatus comprising:

a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, and an energy level exiting from said output window of said basic laser of less than 10 mJ per pulse sufficient to remove from 0.05 to 0.5 microns of tissue per pulse; and

a computer-controlled scanning device coupled to said basic laser to scan said pulsed output laser beam, through known positions of an optical device moved by galvanometric forces, to cause a significant overlap of adjacent ablation spots of predetermined generally fixed size on a single ablation layer to achieve a smooth ablation of corneal tissue.

80 78. (Amended) A method of performing corneal refractive surgery by reshaping a portion of corneal surface, said method comprising:

providing and pulsing a basic laser having an output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, a repetition rate of 1 to 1000 pulses per second, and an energy level exiting from said output window of said basic laser of no greater than 10 mJ per pulse;

focusing said output laser beam onto a corneal surface in a predetermined fixed spot size;

F12 scanning said output laser beam through known positions of an optical device moved by galvanometric forces; and

substantially overlapping adjacent ones of a plurality of ultraviolet laser beam pulses over a single ablation layer on said corneal surface sufficient to ablate a depth of between 0.05 and 0.5 microns of corneal tissue per ultraviolet laser beam pulse.

80. (Not Amended) The method of performing corneal refractive surgery by reshaping a portion of a corneal surface according to claim 78, further comprising:

selecting a scanner to scan said overlapping plurality of laser beam pulses, said scanner deflecting said laser beam pulses a predetermined angle.

82 81. (Amended) The method of performing corneal refractive surgery by reshaping a portion of a corneal surface according to claim 80, 82 wherein:

F13 said optical device includes a mirrored surface.

24 82. (Amended) An ophthalmic surgery apparatus, comprising:

F14 a basic laser having an output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, and an energy level exiting from said output window

of said basic laser of less than about 10 mJ per pulse sufficient to remove from 0.05 to 0.5 microns of tissue per pulse; and

a computer-controlled scanning device coupled to said basic laser to scan said pulsed output laser beam, through known positions of an optical device moved by galvanometric forces, to cause a significant overlap of adjacent ablation spots of predetermined generally fixed size on a single ablation layer of said corneal surface to achieve a smooth ablation of corneal tissue.

83. (Not Amended) The ophthalmic surgery apparatus according to claim 82, wherein:

said pulses are overlapped in a range of 50 to 80 percent.

85. (Not Amended) The ophthalmic surgery apparatus according to claim 82, wherein:

said pulsed beam has a spot size on said corneal tissue of less than or equal to 2 mm.

87. (Amended) The ophthalmic surgery apparatus according to claim 82, wherein said scanning device comprises:

a mirrored surface.

88. (Amended) The ophthalmic surgery apparatus according to claim 82, wherein:

a repetition rate of said laser is synchronized with said scanning device.

89. (Not Amended) The ophthalmic surgery apparatus according to claim 82, wherein:

successive pulses of said pulsed beam are rotated through a linear-scan angle by said scanning device.

30

24 ~~117.~~ (New) The ophthalmic surgery apparatus according to claim ~~82~~, wherein said optical device comprises:

a motor.

31

24 ~~118.~~ (New) The ophthalmic surgery apparatus according to claim ~~82~~, wherein said optical device comprises:

F16 a mirrored device.

32

24 ~~119.~~ (New) The ophthalmic surgery apparatus according to claim ~~82~~, wherein said optical device comprises:

a refractive device.

83

~~90.~~ (Amended) A method for performing corneal refractive surgery by reshaping a portion of corneal surface, comprising:

selecting a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, and an energy level exiting from said output window of said basic laser of less than 10 mJ/pulse;

selecting a scanning mechanism for scanning said pulsed output laser beam through known positions of an optical device moved by galvanometric forces;

F17 coupling said pulsed output laser beam to said scanning mechanism for focusing said pulsed output laser beam in a predetermined generally fixed spot size on said corneal surface;

controlling said scanning mechanism to deliver said scanning pulsed output laser beam in a substantially overlapping pattern on said corneal surface such that adjacent ablation spots on a single ablation layer of said corneal tissue significantly overlap one another to at least one of photoablate and photocoagulate corneal tissue; and

removing from 0.05 to 0.5 microns of corneal tissue per pulse, whereby a patient's vision is corrected by said reshaping of said portion of said corneal surface of said patient's eye.

86

91. (Amended) A method for performing ophthalmic surgery, comprising:

providing a basic laser having a pulsed output laser beam of a fundamental ultraviolet wavelength within a range of 193-220 nm exiting from an output window of said basic laser, and an output energy level exiting from said output window of said basic laser of no greater than 10 mJ/pulse sufficient to remove from 0.05 to 0.5 microns of corneal tissue per pulse;

focusing said pulsing ultraviolet laser beam into a predetermined generally fixed spot size on corneal tissue; and

scanning said pulsing laser beam, through known positions of an optical device moved by galvanometric forces, in a purposefully substantially overlapping pattern on said corneal tissue such that adjacent ablation spots in said overlapping pattern on a single ablation layer of said corneal tissue significantly overlap one another.

87

93. (Not Amended) The method of performing ophthalmic surgery according to claim 91, wherein:

86

said pulsing ultraviolet laser beam is pulsed at a repetition rate of 1 to 1000 Hz.

88

94. (Amended) The method of performing ophthalmic surgery according to claim 91, wherein:

86

said pulsing ultraviolet laser beam is sufficient to ablate a depth in a range of 0.2 and 0.5 microns of corneal tissue per pulse.

95. (Not Amended) The method of performing ophthalmic surgery according to claim 91, wherein:

said substantially overlapping pattern is achieved using a randomized scanning of said pulsing laser beam on said corneal tissue.

~~90~~ 90
~~97.~~ (Not Amended) The method of performing ophthalmic surgery according to claim ~~94~~ 86, wherein:

pulses of said ultraviolet laser beam corresponding to adjacent ablation spots on said single ablation layer overlap one another by at least 50 percent.

FF 18

91
~~98.~~ (Not Amended) The method of performing ophthalmic surgery according to claim ~~94~~ 86, wherein:

pulses of said ultraviolet laser beam corresponding to adjacent ablation spots on said single ablation layer overlap one another in a range of 50 to 80 percent.

84
~~105.~~ (Amended) The method for performing corneal refractive surgery according to claim 90, wherein said optical device comprises:

FF 19

a mirrored surface.

106. (Not Amended) The method for performing corneal refractive surgery according to claim 90, further comprising:

aligning a center of said scanning laser beam onto said corneal surface with a visible aiming beam.

53

47

REMARKS

Claims 1-24, 26, 28, 30, 32, 35-41, 43-49, 53-55, 57, 58, 60, 63-72, 75, 76, 78, 80-83, 85, 87-91, 93-95, 97, 98, and 105-119 are pending in the application, with claims 25, 27, 29, 31, 33, 34, 42, 50-52, 56, 59, 61, 62, 73, 74, 77, 79, 84, 86, 92, 96, and 99-104 having been cancelled, and dependent claims 107-119 being new.

The Applicant thanks the Examiner for the courtesy extended in a telephone conference on January 30, 2001. In that conference, the Examiner indicated that a rigorous review of the entire history of the patent applications had been performed, *inter alia*, with respect to the 'Recapture Rule'.

RECAPTURE RULE ISSUES

In particular, the Examiner indicated that a detailed review of the entire prosecution history had been performed by Examiner Kasnikov (SPE), including a review of all pending claims of the present application and comparison to issued claims of USP 5,520,679 ("The '679 Patent"). As a result of the exhaustive review which apparently took several weeks to complete, the Examiners identified only five areas of concern relating to the Recapture Rule.

The following limitations from claim 1 of the '679 patent were cited with respect to the Examiners' interpretation of Recapture Rule requirements:

(1) "focusing laser beam to a predetermined generally fixed spot size"

(2) "removing from 0.05 to 0.5 microns of tissue per pulse"

(3) "low power laser"

(4) "selecting a laser . . . 10 mJ/pulse"

(5) "galvanometer"

"focusing laser beam to a predetermined generally fixed spot size"

To facilitate a completion to the extended prosecution of this Reissue application, this language is added herein to all pending claims, now mooting all issues relating to the 'Recapture Rule' in this regard.

"removing from 0.05 to 0.5 microns of tissue per pulse"

To facilitate a completion to the extended prosecution of this Reissue application, this language is added herein to all pending claims, now mooting all issues relating to the 'Recapture Rule' in this regard.

Dependent claims, which previously recited this range, rather than being deleted are amended herein to further limit this range to 0.2 to 0.5 microns removed per ablation pulse, as supported in the PARENT application at, *inter alia*, page 24, lines 8-9; see also page 22, line 20.

"low power laser"

The nature of the general phrase "low power laser" is already in the claims of the Reissue application, e.g., in the overlapping requirement of all claims, and as otherwise variously recited in all pending claims.

The Federal Circuit has provided a two part test in applying the Recapture Rule in In re Clement, 45 USPQ2d 1161, 1164 (Fed. Cir. 1997). "The first step in applying the recapture rule is to determine whether and in what 'aspect' the reissue claims are broader than the patent claims." Id. "The second step is to determine whether the broader aspects of the reissue claims relate to surrendered subject matter." Id. "To determine whether an applicant surrendered particular subject matter, we look to the prosecution history for arguments and changes to the claims made in an effort to overcome a prior art rejection." (citing Mentor Corp. v. Coloplast, Inc., 27 USPQ2d 1521, 1524-25 (Fed. Cir. 1993) and Ball Corp. v. United States, 221 USPQ 289, 294-95 (Fed. Cir. 1984)) "[T]he relevance of the prior art rejection to the aspects narrowed in the reissue claim [is] an important factor . . .." Id.

The use of what may be referred to generally as a "low power laser" has been present in **all** iterations of the claims throughout the prosecution history of both the PARENT application (US Appl. No. 07/985,617) and the CIP application (US Appl. No. 08/218,319). Since it has been consistently maintained, from initial filing of the PARENT application through issuance of the CIP application, the phrase "low power laser" was never 'added' as a 'change' to

a claim in an effort to overcome a prior art rejection. Accordingly, the test and guidance provided by the Federal Circuit in Clement confirms that there is no recapture problem in this regard.

In particular, the phrase "low power laser" was recited in independent claim 21 of the original PARENT application, and existed in at least one claim at each stage of the prosecution, including issuance. More specific language reciting a low power energy range of 0.5 to 10 mJ per pulse was included in dependent claim 32 of the PARENT application. The phrase "low power laser" was recited in dependent claim 2 of the CIP application, which remained through the first amendment filed in the CIP application. Claim 2 of the CIP application containing the phrase "low power laser" was indicated as being allowable at this point. This allowable subject matter was rewritten into the ultimately issued claim 1 of the '679 patent.

The "low power laser" language has never been intentionally surrendered in any arguments presented to the USPTO. Detailed features already recited in the reissue claims inherently define what is meant by the generally phrase "low power laser" as it relates to the particular claim.

It is therefore respectfully submitted that upon a more detailed review of the substance of the relevant technology, the prosecution history and the state of the reissue claims, it will be seen and understood that the general phrase "low power laser" has never provided a basis for the intentional surrender of any particular subject matter by the Applicant.

"selecting a laser . . . 10 mJ/pulse"

Language relating to the step of "selecting" a laser having particular parameters has been present in **all** iterations of the claims throughout the prosecution history, and has never been added to overcome a prior art rejection, and thus has never been the basis for an intentional surrender of subject matter by the Applicant.

For instance, claim 8 of the PARENT application originally recited that "the step of selecting a scanning laser includes selecting a said scanning

laser having an output of 0.01-10 mJ." The language is carried through the Amendment in the PARENT application in claim 32, which in turn is carried through to the original claim 1 of the CIP application, remains in claim 1 through the first and second Amendments therein, and ultimately issues in claim 1 of the CIP application. Thus, the step of "selecting" a particular laser remains in every filing by Applicant throughout the history of both the CIP and parent applications, ultimately issuing in claim 1 of the '679 patent, and thus was never surrendered.

For instance, not only is the limitation present as a limitation in all iterations of the claims, there are no comments whatsoever in the only amendment filed in the PARENT application relating to the selection of a particular laser. Moreover, generalized comments made in the Dec. 22, 1995 Amendment of the CIP application were made after the relevant claim was indicated as being allowable. Thus, the comments were not made to 'overcome a prior art rejection' as required by Clement.

It is therefore respectfully submitted that upon a more detailed review of the substance of the relevant technology, the prosecution history and the state of the reissue claims, it will be seen and understood that this language has never been intentionally surrendered by the Applicant.

"galvanometer scanning mechanism"

To facilitate a completion to the extended prosecution of this Reissue application, **all** pending reissue claims are amended herein to include scanning a laser beam "through known positions of an optical device moved by **galvanometric** forces".

The "galvanometric scanning technique" of the present invention as claimed in the original claims of the '679 patent was discussed in the prosecution history, e.g., in the second (last) Amendment of the CIP application before allowance, mailed Dec. 22, 1995.

Dependent claims 107-119 are newly added herein to provide further limitations to the galvanometric scanning, as fully supported by the specification as read by one of ordinary skill in the art. For instance, new

dependent claims further define that the optical device moved by galvanometric forces may be achieved using, e.g., a motor. Others further define that the movement provided may rotate and/or translate an optical device. Accordingly, all pending claims as amended require scanning using a galvanometer scanning mechanism, i.e., any galvanometric device (e.g., a motor) which moves an optical device (e.g., mirror, prism, etc.) through known positions to manipulate a laser beam.

It is respectfully submitted that the addition of this limitation to all reissue claims moots any suggestion of a problem associated with the 'Recapture Rule' in this regard.

USPTO PALM SYSTEM RECORDS

The Examiner also indicated that an apparent ambiguity exists in the U.S. PTO "PALM" system as to the identity of the Assignee of the present Reissue application.

Perhaps the ambiguity spoken of by the Examiner relates to a security interest granted to Foothill Capital Corporation which was recorded at the USPTO. A best available copy of the security interest (Exhibit I: Tab B), as well as a copy of a subsequently filed amendment to the security interest (Exhibit I:Tab C), are attached hereto for the Examiner's convenience. For completeness, a copy of the initial assignment from the inventor to LaserSight, Inc. is also enclosed (Exhibit I: Tab A), as is a copy of an ultimately filed release of the security interest back to LaserSight, Inc. (Exhibit I: Tab D)

37 CFR 1.172(a) requires a declaration from "all assignees, if any, owning an undivided interest in the patent". LaserSight, Inc. has always owned a 100% undivided interest in the '679 patent. This is clear, e.g., from the "Schedule A" attached to the end of the Patent Security Agreements (Exhibit I: Tabs B and C).

In obtaining the collateral, the lender required signature by all subsidiaries of LaserSight, Inc. at the time. Thus, the Patent Security Agreements included the signature of Gregory Wilson acting in his authority in

each of LaserSight Technologies, Inc., MEC Health Care, Inc., LSI Acquisition, Inc., LaserSight Centers Incorporated, and MRF, Inc. Each of these companies were subsidiaries 100% owned and operated by LaserSight, Inc., the full owner of the '679 patent at all times.

As the Examiners can plainly determine for themselves, LaserSight, Inc. has always had an undivided 100% interest in the '679 patent.

Conclusion

For the purpose of leaving a clear prosecution history, Applicant would like to explicitly note that the language "substantially overlapping adjacent ones of a plurality of pulses over a single ablation layer" and similar phraseology in the claims relates to the overlap of pulses ultimately laid down adjacent to one another, but that these adjacent pulses need not be laid down sequentially, just ultimately on the same ablation layer. For example, as disclosed in the application, the pulses may be laid down randomly.

Accordingly, as the Examiners can duly confirm for themselves, no recapture issues remain in any of the pending claims of the present Reissue application. It is therefore respectfully submitted that the subject application remains in condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

William H. Bollman
Reg. No.: 36,457

MANELLI DENISON & SELTER PLLC
2000 M Street, N.W. 7th Floor
Washington D.C. 20036-3307
TEL: (202) 261-1020
FAX: (202) 887-0336